

## Claims

Claimed:

1. A method of continuously manufacturing substrates using formula containing polyethylene glycol comprising:
  - a. Preparation of a substrate for treatment;
  - b. Exposing a substrate to a polyethylene glycol formulation to form a wet substrate;
  - c. Drying and curing the wet substrate to form a treated substrate;
  - d. Neutralizing the treated substrate;
  - e. Drying the neutralized substrate; and
  - f. Manipulating the treated substrate mechanically.
2. Substrates containing reacted polyethylene polymer made in accordance with Claim 1, which are:
  - a. Thermally relevant to human comfort, and;
  - b. Antimicrobial and effective against a range of bacterial and fungal organisms
3. Methods and techniques for integrating into a single, integrated production line, various equipment and hardware to effectuate and accomplish the embodiments in Claim 1.